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NOTICE OF ALLOWANCE AND FEE(S) DUE

26178 7590 02/23/2010

FISH & RICHARDSON P.C.
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER

NGUYEN, LAM S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 02/23/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,951

08/18/2003

Richard E. Fontaine

09991-042001

4153

TITLE OF INVENTION: INDIVIDUAL JET VOLTAGE TRIMMING CIRCUITRY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/24/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

26178 7590 02/23/2010

FISH & RICHARDSON P.C.
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Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,951 08/18/2003 Richard E. Fontaine 09991-042001 4153

TITLE OF INVENTION: INDIVIDUAL JET VOLTAGE TRIMMING CIRCUITRY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/24/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, LAM S	2853	347-010000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,951	08/18/2003	Richard E. Fontaine	09991-042001	4153
26178	7590	02/23/2010	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			NGUYEN, LAM S	
			ART UNIT	PAPER NUMBER
			2853	
DATE MAILED: 02/23/2010				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/642,951	FONTAINE ET AL.	
	Examiner	Art Unit	
	LAM S. NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response dated 11/30/2009.
2. ☒ The allowed claim(s) is/are 53-57,71,73-79 and 81-86.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date ____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

/LAM S NGUYEN/
Primary Examiner, Art Unit 2853

CLAIM REJOINDER

Claim 53 is generic and allowable. Accordingly, claims 82-83, 85-6 are no longer withdrawn from consideration since all of the claims to these species depend from or otherwise include each of the limitations of an allowed generic claim.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Rex Huang on 02/10/2010.

Beside, claims 36-52, and 58-70 are cancelled due to Applicant's non-elected without traverse (Please see Election dated 08/03/2007) (MPEP 821.02)

The application has been amended as below:

In the claims:

Claim 36: Cancelled.

Claim 37: Cancelled.

Claim 38: Cancelled.

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Claim 39: Cancelled.

Claim 40: Cancelled.

Claim 41: Cancelled.

Claim 42: Cancelled.

Claim 43: Cancelled.

Claim 44: Cancelled.

Claim 45: Cancelled.

Claim 46: Cancelled.

Claim 47: Cancelled.

Claim 48: Cancelled.

Claim 49: Cancelled.

Claim 50: Cancelled.

Claim 51: Cancelled.

Claim 52: Cancelled.

Claim 53: Replaced as follows:

--53. An apparatus comprising:

droplet ejection devices each comprising an element to change a volume of a fluid chamber of one of the droplet ejection devices, the element having an electrical capacitance, each droplet ejection device being associated with a plurality of charging resistors; and

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control circuitry to effect uniform velocities of droplets ejected from at least two different ones of the droplet ejection devices by providing respective charge voltages or charge currents to the volume changing elements to individually control a charge on each volume changing element;

wherein for each droplet ejection device, the control circuitry provides the respective charge voltage or charge current by selecting a first charging resistor associated with the droplet ejection device to charge the electrical capacitance at a first rate followed by deselecting the first charging resistor to maintain the charge on the electrical capacitance at a first value for a first period of time, followed by selecting a second charging resistor associated with the droplet ejection device to charge the electrical capacitance at a second rate to increase the volume of the fluid chamber, followed by deselecting the second charging resistor to maintain the charge on the electrical capacitance at a second value for a second period of time, followed by selecting a first discharging resistor associated with the droplet ejection device to discharge the electrical capacitance at a third rate, followed by selecting a second discharging resistor associated with the droplet ejection device to discharge the electrical capacitance at a fourth rate to decrease the volume of the fluid chamber.--

Claim 58: Cancelled.

Claim 59: Cancelled.

Claim 60: Cancelled.

Claim 61: Cancelled.

Claim 62: Cancelled.

Claim 63: Cancelled.

Claim 64: Cancelled.

Claim 65: Cancelled.

Claim 66: Cancelled.

Claim 67: Cancelled.

Claim 68: Cancelled.

Claim 69: Cancelled.

Claim 70: Cancelled.

Claim 72: Cancelled.

Claim 74: Replaced as below:

--74. A method of operating droplet ejection devices each comprising an element to change a volume of a fluid chamber of one of the droplet ejection devices, the element having an electrical capacitance, each droplet ejection device being associated with a plurality of charging resistors, the method comprising:

effecting uniform velocities of droplets ejected from at least two different ones of the droplet ejection devices by providing respective charge voltages or charge currents to the volume changing elements to individually control a charge on each volume changing element; and

for each droplet ejection device, providing the respective charge voltage or charge current by selecting a first charging resistor associated with the droplet ejection device to charge the electrical capacitance at a first rate followed by deselecting the first charging resistor to maintain the charge on the electrical capacitance at a first value for a first period of time, followed by selecting a second

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charging resistor associated with the droplet ejection device to charge the electrical capacitance at a second rate to increase the volume of the fluid chamber, followed by deselecting the second charging resistor to maintain the charge on the electrical capacitance at a second value for a second period of time, followed by selecting a first discharging resistor associated with the droplet ejection device to discharge the electrical capacitance at a third rate, followed by selecting a second discharging resistor associated with the droplet ejection device to discharge the electrical capacitance at a fourth rate to decrease the volume of the fluid chamber.--

Claim 80: Cancelled.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

The most pertinent prior art: Yamamoto et al. (US 4639735).

Regarding to claims 53 and 74: The primary reasons for the indication of the allowability of the claims is the inclusions therein, in combination as currently claimed, of the limitation that wherein for each droplet ejection device, the control circuitry provides the respective charge voltage or charge current by selecting a first charging resistor associated with the droplet ejection device to charge the electrical capacitance at a first rate followed by deselecting the first charging resistor to maintain the charge on the electrical capacitance at a first value for a first period of time, followed by selecting a second charging resistor associated with the droplet ejection device to charge the electrical capacitance at a second rate to increase the volume of the fluid chamber, followed by deselecting the second charging resistor to maintain the charge on the electrical capacitance at a second value for a second period of time, followed by selecting a first discharging resistor

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associated with the droplet ejection device to discharge the electrical capacitance at a third rate, followed by selecting a second discharging resistor associated with the droplet ejection device to discharge the electrical capacitance at a fourth rate to decrease the volume of the fluid chamber is neither disclosed nor taught by the cited prior art of record, alone or in combination.

Claims 54-57, 71, 73, 75-79, and 81-86 are allowed because they depend directly/indirectly on claim 53 or 74.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see [http://pair-](http://pair-direct.uspto.gov)

[direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system,

contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you

would like assistance from a USPTO Customer Service Representative or access to

the automated information system, call 800-786-9199 (IN USA OR CANADA) or

571-272-1000.

/LAM S NGUYEN/

Primary Examiner, Art Unit 2853